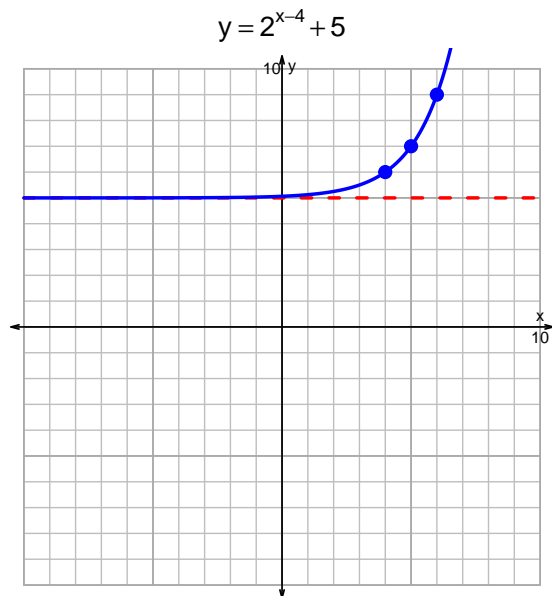
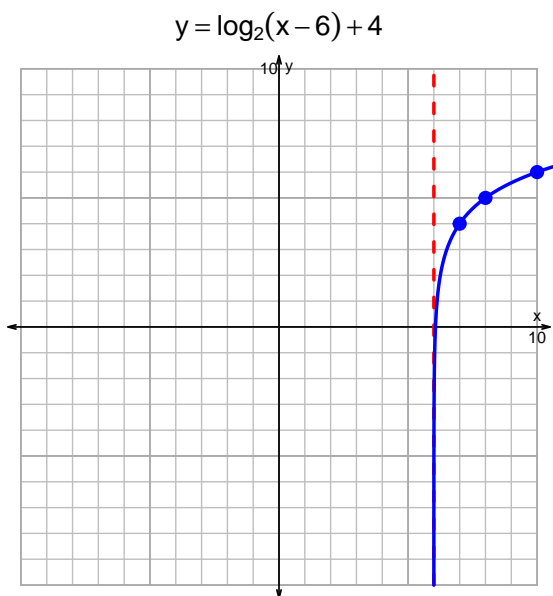


Name: _____

Date: _____

s18QUIZ: EXP LOG (SOLUTION v139)

1. Graph $y = \log_2(x - 6) + 4$ and $y = 2^{x-4} + 5$ on the grids below. Also, draw any asymptotes with dotted lines.



2. Write (but do not evaluate) the solution to the equation below by writing a logarithmic expression.

$$-19 = \left(\frac{-5}{4}\right) \cdot 2^{3t/7}$$

Divide both sides by $\frac{-5}{4}$.

$$\frac{19 \cdot 4}{5} = 2^{3t/7}$$

Take log, base 2, of both sides.

$$\log_2\left(\frac{19 \cdot 4}{5}\right) = \frac{3t}{7}$$

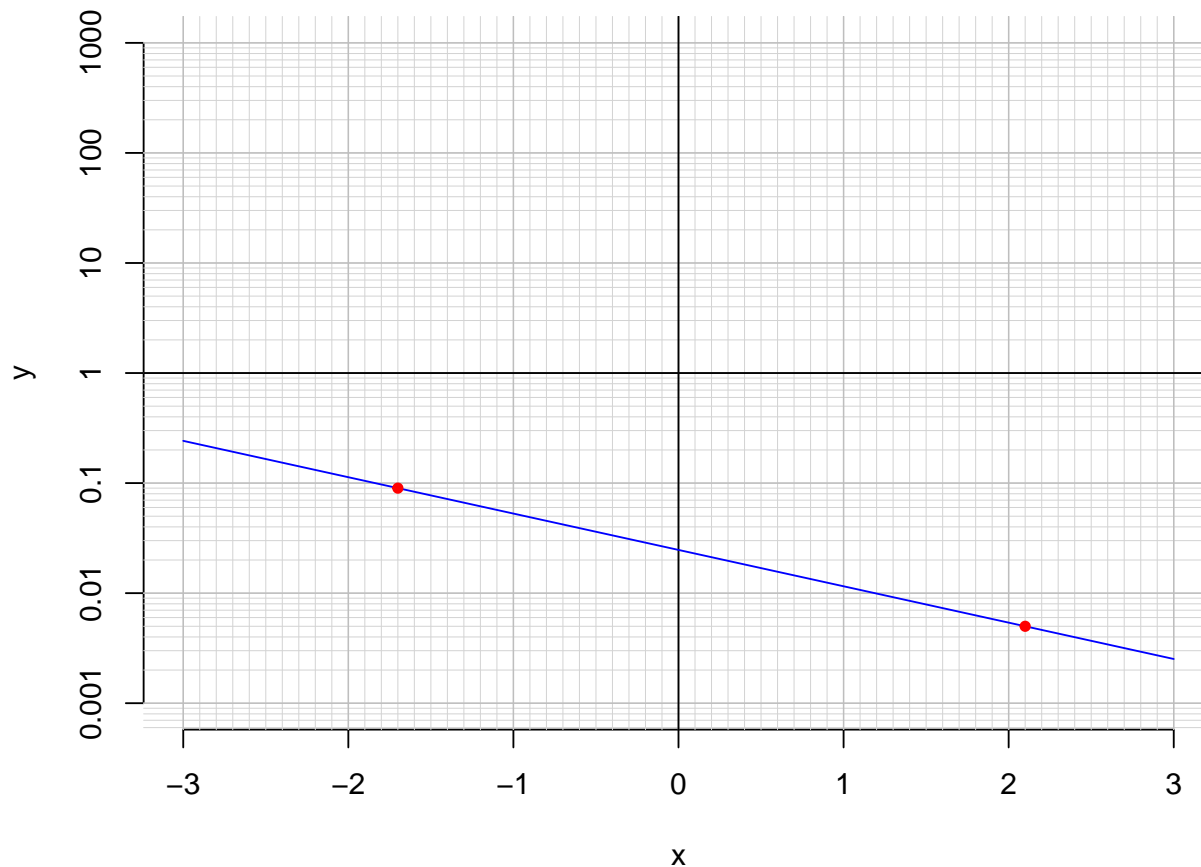
Divide both sides by $\frac{3}{7}$.

$$\frac{7}{3} \cdot \log_2\left(\frac{19 \cdot 4}{5}\right) = t$$

Switch sides.

$$t = \frac{7}{3} \cdot \log_2\left(\frac{19 \cdot 4}{5}\right)$$

3. An exponential function $f(x) = 0.0247 \cdot e^{-0.761x}$ is graphed below on a semi-log plot.



- a. Using the plot above, evaluate $f(-1.7)$.

$$f(-1.7) = 0.09$$

- b. Express $f^{-1}(x)$, the inverse of f .

$$f^{-1}(x) = \frac{-1}{0.761} \cdot \ln\left(\frac{x}{0.0247}\right)$$

- c. Using the plot above, evaluate $f^{-1}(0.005)$.

$$f^{-1}(0.005) = 2.1$$